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Editor

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New Jersey Agricultural Experiment Station
New Brunswick, New Jersey

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Authors of papers intended for publication in Food Technology should request from the Editor's office a copy of a booklet, titled "Suggestions to Authors," and see that their papers are in the form specified therein before they are sent to the editor.

The Institute of Food Technologists assumes no responsibility for statements in contributed articles appearing in Food Technology. Editorials present only opinions of the writers and do not necessarily reflect policies of the Institute of Food Technologists.

Selected Abstracts

ANALYTICAL METHODS

81J. Rapid determination of sulfur dioxide in wine.

MATHERS, A. P. *J. Assn. Off. Agr. Chem., 32,* 745-51 (1949).

A photometric method of determining SO_2 in wine distillate using neutral lead acetate solution as an absorption medium. The colloidal lead sulphite solution obtained is evaluated photometrically. Verification may be obtained by acidification of lead sulfite solution and SO_2 content determined by iodimetric titration.

82J. Determination of fats in flour products after baking.

BURE, J., AND DELARUOZEE, G. *Ann. fals. et fraudes, 41,* 369-75 (1948).

Only after acid hydrolysis is it possible to extract the lipoids from bakery goods. Attention is called to the fact that flours contain a natural quantity of fat that must be considered in relation to the quantity declared as having been added.

83J. A study of clarification methods in the determination of sugars in white potatoes. Use of ion exchange resins.

WILLIAMS, K. T., et al. *J. Assn. Off. Agr. Chem., 32,* 698-705 (1949).

Sugar values obtained by different methods of analysis using lead acetate and carbon clarification indicated that non-sugar reducing substances were not effectively removed, thus introducing significant errors. Ion-exchange resins were found to remove effectively the interferring non-sugar reducing materials without affecting the reducing sugar content of the sample extract. Procedures for sugar in raw and dehydrated potatoes are given. Tables showing results obtained by different methods and clarification are compared. The favorable results obtained with ion-exchange resins in the clarification of sugar extracts from potatoes indicate that the use of resins might be effectively applied in sugar determinations on biological and other food materials.

84J. A study of U.S.P. XIII and N.F. VIII. Drying conditions.

DEAHL, N. L., POWERS, J. L., AND GREEN, M. W. *Bull. Nat. Form. Comm., 16,* 153-67 (1948).

Suitable drying conditions for more than one thousand compounds are described. Recommendations for changes in specifications are given in tabular form.

85J. A method of determining the mercury content of air.

VAN SUCHTELEN, H., WARMDTZ, N., AND WIGGERINK, G. L. *Philips Tech. Rev., 11,* 91-97 (1949).

Exposure for some length of time to an atmosphere contaminated with mercury vapor may be dangerous for human beings when the air contains more than 100 μg mercury per m^3, as established by American scientists. The method for determining the mercury content of air is based upon the property of the mercury atom to absorb radiation of the wavelength 2537 Å. Part of this radiation, supplied by a low-pressure mercury-vapor lamp, passes through a measuring tube through which the air to be tested is conducted and is then directed upon a photocell, while another part is thrown directly upon a second photocell. The two photo-electric currents are compared with the aid of a compensation circuit, with a tuning indicator used as zero device. The two methods by which the apparatus described is calibrated are briefly discussed. Mercury concentrations of 1 to 200% of the limit dangerous for human beings can be measured. Various possibilities of application are mentioned. This mercury-vapor detector appears to be sensitive also to all kinds of organic vapors, but to a much less degree compared to mercury, so that this does not cause serious interference. Advantage can be taken of this property of the detector for measuring the concentration of these organic vapors. Typical solvents whose vapors can be detected are xylol, monochlorobenzene, aniline, toluene, benzene, acetone, trichloroethylene and benzine. An accompanying table lists the instrument's sensitivity for each solvent.

86J. Mercury poisoning.

HARDY, H. L. *Physics Today, 2,* 7-11, Nov., 1949.

Mercury is not treated with the respect it deserves in general laboratory practice. The vapor pressure of mercury even at ordinary temperatures is sufficient to result in concentrations greater than the maximum allowable concentration. Mercury can also be absorbed through the skin. It affects the nervous system, and an early symptom is muscular tremors primarily in the eyelids, fingers, and tongue. Treatment is removal from the source of mercury until the body eliminates its mercury content. Good ventilation of laboratory areas is a wise precaution.

BIOLOGICAL SCIENCES

MICROBIOLOGY

87J. The bacteriology of spray-dried egg with particular reference to food poisoning.

(Gr. Brit.) Privy Counc. Spec. Rept. Ser., 260, 6-66 (1947).

From 1941 to 1946 approximately 9000 samples from spray-dried egg imported into Britain from America were examined bacteriol. Plate counts varied greatly, the commonest being between 5000 to 50,000 per g. Predominant bacteria were enterococci and aerobic spore-bearers, but coliform bacilli, clostridia, *Staphylococcus aureus,* and hemolytic streptococci were not uncommon. Organisms of the *Salmonella* group were found in 9.9% of the samples, and included 33 different types, the 5 most frequent being *oranienburg, montevideo, meleagridis, tennessee,* and *bareilly. Salmonella* spp. were usually present in small numbers, less than 30 per g., and the percentage 9.9 based upon one 10-g. sample is considered to be far below the true figure. Salmonella could not be demonstrated in scrambled egg and omelette prepared from freshly reconstituted egg, but if the reconstituted eggs were incubated for some hours, cooking could not be relied upon to kill all the salmonallae present. Evidence shows that dried egg was responsible for several outbreaks and large numbers of sporadic cases of *Salmonella* food poisoning. Many of the *Salmonella* types isolated in connection with these outbreaks were included in the group found from the eggs, and had not been found in Britain before the war. Clinical history of cases of *Salmonella* food poisoning associated with these new types is briefly reviewed. Bacteriol. examination of mesenteric lymph nodes of pigs resulted in finding of 17 spp. of *Salmonella,* 12 of which had not been found in Britain before the war. All but 3 were found in the eggs.

88J. Antiseptics for foodstuff. XXXV.

FUJIKAWA, F. et al. *Pharm. Soc. Japan, 69,* 106 (1949).

Growth of mold was inhibited in a 50-day test by 2,4-dihydroxybenzophenone at a concentration approximately 0.005-0.007% and by 2,4-dihydroxy-3,6-dimethylbenzophenone at a concentration of 0.010-0.015%; 2,4-dihydroxy-6-methyl-, 3,6-dihydroxy-, and 4-hydroxy-derivatives virtually showed no antiseptic action.

NUTRITION

89J. The state of vitamin A in eggs.

NEFF, A. W. et al. *Arch. Biochem., 21,* 315-20 (1949).

Methods for determination of content and of state of vitamin A in eggs that had a low carotenoid pigment content are described. Under conditions of this study, vitamin A fed at high levels was transferred more efficiently to the egg when given as vitamin A ester than when given as either vitamin A alcohol or carotene. The state of vitamin A was determined in yolk of eggs from 9 hens fed vitamin A in different forms. The vitamin A alcohol contents of the eggs analyzed varied from 71 to 93% of the total vitamin A present. At each of the three periods of the trial, eggs from hens receiving supplements of vitamin A alcohol contained approximately the same average percentage of vitamin A in the alcoholic form. Supplements of either esterified vitamin A or carotene given at high levels seemed to cause a small decrease in the percentage of alcoholic vitamin A of the eggs.

90J. The ascorbic acid value of some extra foods.

MILLER, L. A., AND BURTON, H. B. *Proc. Oklahoma Acad. Sci., 28,* 67-8 (1948).

Orange marmalades (made according to a recipe stipulating vinegar, lemon peel and juice, as well as orange, made with liquid pectin and a little soda; and made with liquid pectin and

(Continued on page 10 following technical papers)

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Preliminary Program — 1950 Conference Institute of Food Technologists

ALL SESSIONS AT EDGEWATER BEACH HOTEL, CHICAGO, ILLINOIS

SUNDAY, MAY 21, 1950

Morning

Council Meeting, 10:00-1:00—Lincoln Room. Presiding—President Carl Fellers.

Afternoon

Council Luncheon, 1:00-2:00—American Room.
Council Meeting (Continued), 2:00-5:00—Lincoln Room.

Evening

Social Hours, 5:00-7:00—West Lounge.
Committee Meetings, 7:30-9:30.
Committee—The Microbiology of Citrus Products — Lincoln Room. Chairman—Reese H. Vaughn.
Other committee meetings may be scheduled later.

MONDAY, MAY 22

Morning

General Session, 9:30-12:00—Ball Room. Presiding—President Carl R. Fellers.
Introduction of Charles L. Smith, Chairman, Local Arrangements Committee.
Welcome Address—Mayor Martin H. Kennelly.
Presidential Address—Carl R. Fellers.
Address: The Relationships and Similarities of the Pharmaceutical and Food Industries—Ernest H. Volwiler.
Address: Money and Credit in The Changing World—Guy E. Reed.
Address: Modern Trends in Technological Education—Henry T. Heald.

Afternoon

Babcock Award Luncheon, 12:15-1:45—Marine Room. Presiding—Paul F. Sharp.
Address: Stephen Babcock—E. B. Hart.
Presentation of Babcock Award to Recipient—C. G. King.
Acceptance, Babcock Award—Recipient.
Concurrent Sessions, 2:00-5:00.

A. Symposium.
Chemical Agents and Residues in Foods—Michigan Room. Presiding—Bernard L. Oser.

1. From the Viewpoint of the Grower—Frank App.
2. From the Viewpoint of the Food Technologist—W. A. Britten.
3. From the Viewpoint of the Container Manufacturer—L. V. Burton.
4. From the Viewpoint of the Law—Michael F. Markel, Esq.
5. From the Viewpoint of the Consumer—A. A. Schaal.

B. Industrial and Production.
Cereal Technology—North Terrace. Presiding — John H. Nair.

6. Some Baking Industry Problems and Solutions—Arthur G. Hackett.
7. Deterioration of Stored Grain due to Moisture—Max Milner.
8. Technology in the Manufacture of Breakfast Cereals—S. F. Brockington.
9. The Role of Enzymes in Milling and Baking Technology W. F. Geddes.
10. Products Control in the Baking Industry—Ralph Mitchell.
11. Milling Technology—Del B. Pratt.

C. Research Investigations.
Section A—Lincoln Room. Presiding—George F. Stewart.

12. Effect of High Voltage Cathode Rays on Amino Acids in Fish Muscle—Bernard E. Proctor and Darshan S. Bhatia.
13. Effect of Ante-Mortem Treatment of Hogs on the Quality of the Cured Meat—N. E. Gibbons and Dyson Rose.
14. Biochemistry of Meat as Related to Tenderness—S. A. Husaini, F. E. Deatherage, and L. E. Kunkle.
15. Effect of Boning on Cooking Losses and Palatability of Beef—Pauline Paul, Mary L. Morr, Lyman Bratzler, and Margaret A. Ohlson.
16. Post-Mortem Changes in Stored Meats. II. The Effect of Atmospheres Containing Carbon Dioxide in Prolonging the Storage Life of Cut-Up Chicken—W. S. Ogilvy and John C. Ayres.
17. The Suspending Power of Carrageenin—R. C. Rose and W. H. Cook.
18. Detection of the Deterioration Products of Autoxidizing Milk Fat by Infrared Spectrometry—Albert S. Henick.
19. The Effect of Temperature on the Bacterial Infection of Shell Eggs—J. Wolk, E. H. McNally, and N. H. Spicknall.

C. Research Investigations (Continued).
Section B—American Room. Presiding—Louis B. Howard.

20. Nature of Thermal Death Time Curves for P. A. 3679 and *Clostridium botulinum*—C. R. Stumbo, J. R. Murphy, and Jeanne Cochran.
21. Heat Transfer in Commercial Glass Containers During Thermal Processing—I. S. Fagerson and W. B. Esselen, Jr.
22. Preservation of Vegetables with Subtilin and Mild Heat—Ariel A. Anderson, H. David Michener, and George S. Bohart.
23. Some Effects of Processing on the Nutritive Properties of Proteins—R. R. Baldwin, R. Thiessen, Jr., and J. R. Lowry.
24. Factors Influencing Tomato Paste Quality. I. Pectic Changes During Processing—R. J. McCulloch, B. W. Nielsen, and E. A. Beavens.
25. The Effects of Dielectric Blanching on the Quality of Canned Vegetables—J. S. Moyer, K. C. Holgate, and W. B. Robinson.
26. Drying by Infra-Red—A. Cornwell Shuman and Carroll H. Staley.
27. A Pilot Scale Study of Shell Egg Thermostabilization—Harry E. Goresline, Roy E. Moser, Jr., and Kirby M. Hayes.

Evening

Mixer, 8:00 until . . . Ball Room.
Meetings, 7:00—National Research Council, Committee on Food and Nutrition. Chairman—C. G. King.

TUESDAY, MAY 23

Morning

Section Officers Breakfast, 7:30-8:45—Berwyn Room.
Concurrent Sessions, 9:00-12:00.

A. Symposium.
Fish and Fishery By-Products—Ball Room. Presiding—H. L. A. Tarr.

28. Bacterial Spoilage of Fish and its Control—Ernest Hess.
29. Problems in Handling Fresh and Frozen Shrimp—E. A. Fieger.
30. The Effect of Storage on the Quality of Frozen Fish—W. H. Hampton.
31. Some Engineering Aspects of the Freezing, Storage and Transport of Fish—O. C. Young.
32. Fishery Products as a Source of Animal Protein—Hugo W. Nilson.
33. Commercial Processing of Frozen Fish with Ascorbic Acid—J. C. Bauernfiend and G. F. Seimers.
34. Some Chemical and Biological Tests Showing the Effect of Processing on Fish Proteins—W. H. Hastings.

B. Industrial and Production.
Canning Technology—Michigan Room. Presiding—Ray B. Wakefield.

35. Short High-temperature Sterilization and Aseptic Canning Methods—W. McK. Martin.
36. Unforeseen Corrosion in Tinplate Caps for Glass Containers—Edward F. Kohman.
37. Induced Convection Heating in the Sterilization of Canned Cream Style Corn—Paul Wilbur.
38. How We Use Our Pilot Plant—D. DeFelice and Eric Beu.
39. A New Principle for Agitating in Processing of Canned Foods—L. E. Clifcorn, G. T. Peterson, and J. M. Boyd.
40. Color Measurement of Tomato Purees—S. G. Younkin.
41. Several Practical Quality Control Measures — H. B. Rogers, Jr.

C. Research Investigations.
Section A—Lincoln Room. Presiding—John Ayres.

42. Some Factors Influencing the Functional Properties of Egg Whites—Caroline Perkins Clinger, Arlene Young, Inez Prudent, and A. R. Winter.

(Continued on page 5)

PRELIMINARY PROGRAM

(Continued from back of insert)

43. Resting-Cell Fermentation of Egg White by Streptococci—Arthur M. Kaplan, Mathilde Solowey, William W. Osborne, and Haskell S. Tubiash.
44. Storage Studies on Fermented Dried Egg White—Frances Carlin and John Ayres.
45. Egg Powder of Greatly Improved Stability—Leo Kline, Helen L. Hanson, R. F. Feeney, and Hans Lineweaver.
46. Butylated Hydroxyanixole as an Antioxidant for Fats and Foods Made with Fat—L. R. Dugan, Jr., H. R. Kraybill, Louise Ireland, and F. C. Vibrans.
47. The Use of Antioxidants in Deep Fat Frying—Louis Sair and Lloyd A. Hall.
48. Improved Food Products Using Dried Inactive Brewers Yeast—Elmer F. Glabe and Pauline F. Goldman.
49. Effect of Starch Variety and Initial Processing on Gelatinization Characteristics—H. A. Campbell and F. Hollis, Jr.

C. Research Investigations.
Section B—American Room. Presiding—Z. John Ordal.

50. The Growth Initiation of Bacteria in Defrosted Eggs—S. E. Hartsell.
51. Bacteriophage Activity in Lactic Dairy Cultures—F. E. Nelson and C. E. Parmelee.
52. Difficulties of Control in Quantitative Studies of Ultrasonic Bactericidal Effects—R. McL. Whitney and Lillian A. Russell.
53. Studies on the Possibility of the Transmission of Salmonella by Cooked Fowl—Dorothy L. Husseman and Margaret A. Wallace.
54. The Mode of Action of Sodium Benzoate—Roy E. Morse.
55. *Escherichia coli* as an Indicator of Contamination of Some Foods—Reese H. Vaughn.
56. Thermophilic Methane Fermentation of Cannery Waste—Kenneth E. Duggan and Curtis J. Wilder.
57. Vitamin B_{12}-Active Substances in Fish Products—H. L. A. Tarr and B. A. Southcott.

Afternoon

Executives Luncheon, 12:15-2:15—Marine Room. Presiding—Roy C. Newton.

Address: Your Host City: What Made it and What is it?—Leverett Lyon.

Address: The Importance of Agricultural Development to Food Processing—Allan B. Kline.

Visit Exhibitors and Personal Conferences, 2:15-5:00.

Evening

Nicholas Appert Banquet, 7:00—Ball Room. Presiding—Carl R. Fellers, President.

Presentation—Nicholas Appert Medal. Colonel Rohland A. Isker.

Acceptance Address—Thomas M. Rector. The Food Technologist—His Opportunity for Service.

WEDNESDAY, MAY 24

Morning

Food Technology Editorial Board Breakfast, 7:30-8:45—Berwyn Room. Presiding—C. Olin Ball.

Concurrent Sessions, 9:00-12:00.

A. Symposium.
By-Products of the Packing House Industry—Michigan Room. Presiding—Victor Conquest.

58. The Use of Packing House By-Products for Animal Feed (Swine and Chicks)—O. H. M. Wilder.
59. Importance of Livestock in Agricultural Economy—E. N. Wentworth.
60. The Role of the Food Technologist in the Manufacture of Canned Meats—V. R. Rupp.
61. Pharmaceuticals Derived from the Packing House Industry—S. W. Hier.
62. The Technology and Utilization of Gelatin and Bone Meal—W. F. Bronson.
63. The Packing House as a Source of Nutrition for Dogs and Cats—H. E. Robinson.

B. Industrial and Production.
Candy Technology—South Terrace Room. Presiding—Emil Mrak.

64. Confectionery Sweeteners—E. Meeker.
65. Problems in Chocolate Liquor Production—Justin J. Alikonis.
66. The Problem of Chocolate Bloom—Harvey A. Neville.
67. Trouble Shooting in the Marshmallow Field—T. J. Otterbacher.
68. Some Problems in the Manufacture of Hard Candy—A. V. Cramer.
69. Antioxidants in Fat-Containing Candies—Helen M. Robinson.

C. Research Investigations.
Section A—Lincoln Room. Presiding—Alvin I. Nelson.

70. Prevention of Sucrose Hydrate in Frozen Fruit Products—John E. Brekke and William F. Talburt.
71. Dehydrofrozen Apples—William F. Talburt, L. H. Walker, and Myron J. Powers.
72. Preparation of Frozen Apple Concentrate—L. H. Walker, C. C. Nimmo, and D. C. Patterson.
73. Preparation and Storage of Frozen Cooked Poultry and Vegetables—Helen L. Hanson, H. Margaret Winegarden, Mary B. Horton, and Hans Lineweaver.
74. The Effect of Feed on Bone Darkening of Frozen Young Chickens—Ethyl Shelor, S. R. Cecil, J. G. Woodroof, and W. E. DuPree.
75. Indirect Immersion Freezing of Fruit and Vegetable Products—George S. Smith and Manley W. Cole.
76. Survival of Microorganisms in Frozen Concentrated Orange Juice—L. S. Faville, E. C. Hill, and E. C. Parish.
77. Survival of Microorganisms in Frozen Meat—William L. Sulzbacher.

C. Research Investigations.
Section B—American Room. Presiding—M. L. Anson.

78. Some Observations on the Browning Reaction—Harry H. Beacham and Malcolm F. Dull.
79. Isolation and Characterization of Peach Tannins—Gestur Johnson, M. M. Mayer, and D. K. Johnson.
80. A Study of Blackening and Fluorescence in Potatoes—Ferne Bowman and Flora Hanning.
81. Fluorescence Changes in Solutions of Acetaldehyde and Ammonia and of Glucose and Glycine—Jesse A. Pearce.
82. Isolation and Identification of Reversion Components in Hydrogenated Soybean Oil—A. I. Schepartz and B. F. Daubert.
83. Proper Conditions for Determination of Lipase Activity—R. Hubata and G. Harvey Benham.
84. Studies on the Peroxidase in Acid Foods—E. A. Nebesky, W. B. Esselen, Jr., and C. R. Fellers.
85. Observations on the Fining of Wines with Casein—L. Meis, R. O'Neal, and W. V. Cruess.
86. A Method for Maintaining Free Sulfur Dioxide Content in Wine—H. Y. Young and E. H. Wiegand.

Afternoon

IFT Business Meeting and Luncheon, 12:15-1:45—Ball Room.

Concurrent Sessions, 2:00-5:00.

A. Discussion Group.
Frozen Foods Committee—Berwyn Room. Chairman—E. H. Wiegand.

B. Industrial and Production.
Sanitation in the Food Industry—Michigan Room. Presiding—Donald L. Truax.

87. The Sanitation Program of the National Confectioner's Association—Gerald Doolin.
88. Sanitation in a University Food Technology Curriculum—E. M. Mrak.
89. Sanitation Problems in the Frozen Food Industry—Kenneth Dykstra.
90. Design and Construction of Buildings as They Relate to Food Plant Sanitation—Austin Company.
91. Studies Relating to In-Plant Chlorination—I. I. Somers.

C. Research Investigations.
Section A—Lincoln Room. Presiding—George F. Stewart.

92. Some Growth Traits of the Food Manufacturing Industry—Allen B. Paul.
93. Some Applications of Statistics to Laboratory Taste Testing—S. Harrison and L. S. Elder.
94. Organoleptic Comparison of Large Numbers of Samples—Helen L. Hanson, Leo Kline, and Hans Lineweaver.
95. A Comparison of Sensory Methods of Measuring Differences in Food Qualities—Elsie H. Dawson and Elsie F. Dochterman.
96. Methodology for Sensory Evaluation of Imitation Peppers—David R. Peryam and VeNona W. Swartz.
97. Critique of Selected Methods for Measuring Consumers' Preferences for Canned Orange Juice—Richard L. D. Morse.

(Continued on page 15 following technical papers)

THEORY AND MECHANICS OF THE HYDROGENATION OF EDIBLE FATS

Abstract by Martin Heerdt.

Article by A. E. Bailey of The Girdler Corporation, Louisville, Kentucky, published in *Journal of the American Oil Chemists' Society* **26**,10, 596 (1949).

Hydrogenation of an oil involves the following sequence of operations: (1) solution of hydrogen in the oil; (2) adsorption of dissolved hydrogen on the catalyst; (3) prior or later adsorption of unsaturated oil; (4) reaction to form a nickel-hydrogen-oil complex; (5) decomposition of the complex to yield hydrogenated oil and free nickel; (6) desorption of the hydrogenated oil.

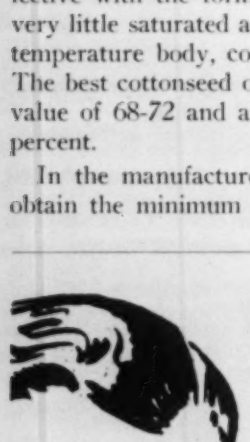
In American practice oil for table margarine is usually prepared by hydrogenating a single liquid oil (cottonseed oil or soybean oil) or a mixture of oils to the proper consistency. Hydrogenation must be very selective with the formation of much iso-oleic acid, but very little saturated acids, to produce an acceptable low temperature body, combined with a low melting point. The best cottonseed oil products usually have an iodine value of 68-72 and an iso-oleic content of about 18-20 percent.

In the manufacture of shortenings, the object is to obtain the minimum iodine value or linoleic acid content consistent with the desired body or consistency characteristics. The body at 70-75° F. is usually more important than the high-temperature body or melting point. Very selective hydrogenation, as practiced in margarine oil manufacture, is undesirable for shortening. Whereas the lowest melting products at a given 70-75° F. consistency are obtained when hydrogenation is conducted as selectively as possible, the lowest iodine value or lowest linoleic acid content is obtained when the reaction is neither non-selective nor extremely selective, and a moderate amount of iso-oleic acids is formed.

At an acceptable shortening consistency the lowest linoleic acid content is achieved (with cottonseed oil) when hydrogenation conditions are such as to carry the iso-oleic acid content to about 15 percent at an iodine value of about 60-63. These are actually common figures for shortenings of the high stability type, whose high temperature body is not important. In other baker's shortenings the body at summer atmospheric temperatures must be considered. High temperature body is contributed by making the reaction less selective, to build up more saturated acids, and usually also by adding a small proportion of highly hardened oil. Under such conditions the optimum iso-oleic acid level (with cottonseed oil) is in the range of 8-12 percent, with the iodine value varying from about 60 to 68, according to the standards for high temperature body and the consequent amount of hard oil incorporated.

In commercial practice hydrogenation is usually carried out with fixed agitation or hydrogen dispersion, within a relatively narrow range of catalyst concentrations (usually about 0.05-0.10 percent nickel), and dependence is placed chiefly upon variations in temperature and/or pressure to achieve the desired range of selectivity for different products. The ordinary ranges of temperature and pressure are about 225-350° F. and 0-60 psig, respectively. Some plants hydrogenate all products under the same (relatively selective) conditions but this cannot be considered good practice. In all cases, however, it is desirable to use a "selective" catalyst, i.e., a catalyst which gives a minimum formation of iso-oleic acids at a given level of saturated acid formation, and vice versa.

Because of the rapidity with which the consistency of a fat changes as its iodine value is reduced, it is not easy to bring each batch of oil precisely to a desired consistency. In most plants the iodine value is simply reduced to a point where previous experience has shown the consistency to be satisfactory with the particular oil and the particular hydrogenation conditions employed. —*Commercial Fisheries Abstracts*, February, 1950.



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Abstracts

(Continued from page 4 preceding technical papers)

no soda), tomato preserves, chili sauce, and catsup were tested. Some of the products stood about 8 months before testing, some were tested as soon as made and again 3 months later. The chemical titration method, using 2, 6-dichlorophenolindophenol was followed. All of the usual precautions were observed. At least 3 tests were run on each sample. Considering the marmalades, length of storage had more effect than method of preparation. The 2 marmalades tested 8 months after preparation had somewhat similar values even though 1 had soda in it. Of all products tested, chili sauce had the highest value, fresh marmalade next, and tomato catsup lowest. Considering a rounding tablespoon as a serving, a daily serving would give from 0.8-4.2 mg., not a significant amount, but worthy of consideration.

91J. The availability of ascorbic acid of shaddock (Citrus decumana) by adult human subjects.

De, H. N., and Barai, S. C. *J. Indian Chem. Soc., 25,* 389-92 (1948).

Ascorbic acid was determined in the urine of 3 students during control and experimental periods with diets involving pure vitamin C and grapefruit juice. It was concluded that the availability of ascorbic acid of grapefruit is of the same order as that of the cryst. acid.

92J. Effect of rutin on the biological potency of vitamin C.

Crampton, E. W., and Lloyd, L. E. *Science, 110,* 18 (1949).

Although the mechanism of action of rutin is as yet undetermined, the biological value of vitamin C is enhanced by the presence of rutin.

93J. Fatty acid structure and nutritive value.

Daubert, B. F. *J. Am. Oil Chem. Soc., 26,* 466-9 (1949).

The relation of fatty acid structure to nutritive value has yet to be revealed; however, several things stand out in sharp focus. (1) Linoleic and/or arachidonic acids are essential for adequate nutrition of the rat and are apparently essential factors in maintaining the integrity of the skin of the dog and the human. (2) A definite relationship seems to exist between the metabolism of the essential fatty acids and pyridoxine in the rat. (3) Since unsaturated fatty acids can substitute for biotin in the nutrition of certain organisms, it seems that a definite relationship exists in their biosynthesis.

94J. The amino acid requirements of swine—lysine.

Mertz, E. T., Shelton, D. C., and Beeson, W. M. *J. Animal Sci., 8,* 524-31 (1949).

Lysine is essential for growth of the weanling pig. A lack of lysine inhibits growth, feed consumption and decreased feed efficiency. Lysine-deficient pigs manifest a depraved appetite, rough hair coat, emaciated look and apparent inanition.

95J. Effects of thiouracil on rate and efficiency of gains of swine.

Terrill, S. W. et al. *J. Animal Sci., 8,* 501-07 (1949).

Of the levels of thiouracil tested 0.15% is nearly optimum for fattening barrows weighing 140 to 180 pounds initially. Under conditions of equalized feed intake, thiouracil increases the rate of gain of pigs significantly and reduces the amount of feed consumed per unit of gain significantly. When comparable pigs are fed to the limit of appetite either individually or in groups, adding thiouracil to an adequate ration does not increase the rate of gain, but it does significantly reduce the amount of feed required per unit of gain as well as the feed consumption. Thus the chief benefit from thiouracil under conditions of full-feeding is to the increase in efficiency of gains rather than any increase in rapidity of gains. The optimum length of time to feed thiouracil is 4 weeks. The power of thiouracil to increase rate of gain exerts its greatest effect during either the second or third week of feeding.

96J. The effect of stilbestrol and testosterone on the growth and fattening of lambs.

Andrews, F. N., Beeson, W. M., and Harper, C. *J. Animal Sci., 8,* 578-82 (1949).

12 to 24 mg. of subcutaneous implanted stilbestrol or 10 mg. of testosterone increased the gains of wether lambs during a 68 day feeding period. All hormone treated groups required less feed per pound of gain than the control lambs. Testosterone improved carcass quality and market value.

FOOD PRODUCTS

BAKERY PRODUCTS

97J. An introduction to the micro-oven technique as applied to bakery research.

Bradhaw, R. C. A., and Coppock, J. B. M. *J. Soc. Chem. Ind., 68,* 235-7 (1949).

A new technic is described for studying the changes that take place in doughs, batters etc. using a micro-oven. The problems associated with its use are reviewed, and illustrations are given showing its application to bread doughs, sponge mixtures and emulsions.

98J. Diastatic activity of different kinds of flour.

Sapozhnikova, E. V. *Biokhimiya, 14,* 219-22 (1949).

Corn flour has a high diastatic activity. Wheat flour with a low diastatic value can be enriched by the addition of 5-10% of corn flour. Wheat flour which contains some barley often forms gluey bread, as a result of dextrins formed from α-amylase. The stickiness can be avoided by using flour 10-15 days after milling, during which time all the α-amylase will have disappeared.

COFFEE

99J. The aging of coffee.

Mendes, C. T. *Rev. Agric. (piracicaba) 23,* 81-5. (1948).

Coffee may be stored with good results for 3 or more years provided it is kept dry and away from disagreeable odors. There is color loss even when light is not involved. Experiments extended from 1936 through 1946.

FATS AND OILS

100J. Fat hydrolysis.

Mills, V., and McClain, H. K. *Ind. Eng. Chem., 41,* 1982-5 (1949).

Data are presented on the reaction of tallow and coconut oil with water, in the temperature range used in continuous fat splitting. The maximum amount of splitting which can occur is determined by the glycerol concentration in the aq. phase. This value is not affected by changes in temperature. In the range 90 to 100% completeness, the unsplit fat contains more glycerol than the original fat, an indication of the presence of a large amount of monoglyceride. The percentage of glycerol in the unsplit fat is constant, which is strong evidence that the reaction proceeds stepwise. The autoclave in which the work was done is suitable for general use.

101J. Selective enzyme hydrolysis.

Sanders, J. H. Assignor to The Proctor & Gamble Co., 2,485,779, Oct. 25, 1949.

The process of liberating and separating substantial proportions of the lower moleculer wt. fatty acids from a mixture of glycerides having fatty radicals within the range C_{12} to C_{24} and including some which contain at least y more carbon atoms per radical than others, which comprises subjecting said mixtures of glycerides, at a temperature between about 40° F. and about 140° F. and above that at which substantial amounts of solid fats separate from the oil, to the action of an active lipase of the group consisting of oil seed lipases and steapsin, in the presence of an aq. phase until said lower moleculer weight fatty acids have been liberated to a substantial extent as a result of preferential enzyme hydrolysis, and until the free fatty acid content of the oil has increased at least about 10% and not substantially above the percentage content of lower molecular weight combined fatty acids in the original oil, then removing the partially hydrolyzed oil from the influence of active lipase and separating said free fatty acids from a residual mixture of glycerides of fatty acids having on the average longer carbon chains than those of the liberated fatty acids, and at any time following the partial hydrolysis substantially separating the aq. glycerin from the oil phase.

(Continued on page 12)

Regional Section News

(Continued from page 2 preceding technical papers)

An Employment Committee, affiliated with the national office of IFT, for food technologists has been established locally. Services of this Committee are available without charge to members of the Institute, and to prospective employers seeking food technologists. Any one wishing to live, play and work in the glorious Pacific Northwest should address inquiries to Mr. Max Patashnik, Libby, McNeill and Libby, P. O. Box 1902, Seattle, Washington.

SOUTHERN CALIFORNIA SECTION

In connection with the fourth annual all-day conference of this Section, which was reported in the March issue of FOOD TECHNOLOGY, one of the outstanding events was the Food Fair consisting of new food products manufactured in southern California and marketed for the first time in 1949. Mr. Cunningham was largely responsible for the success of the interesting display. Proceedings of the all-day meeting are to be published in the near future. Price: $1.00.

The April meeting was held at the Rodger Young Auditorium in Los Angeles, the subject being "The Food Technologist and the Law." Speakers were Arthur A. Dickerman, Attorney, Federal Security Agency, General Counsel's Office, Washington, D. C., and Milton P. Duffy, Chief, California Bureau of Food and Drug Inspection, Dept. Health, Los Angeles. Discussion leader was F. L. Hart, Chief-Chemist, Los Angeles District, Federal Food and Drug Administration.

PHILADELPHIA SECTION

The February meeting was held on the 23rd at Brewery Tavern. Dr. Walter L. Obold, Professor of Biological Sciences, Drexel Institute of Technology spoke on "The Presence of Chemicals in Food." This is a timely subject in view of the hearings now under way by the Federal Food and Drug Administration relative to spray residues on foods.

The matter of the desirability of holding the 1951 IFT Conference at Mackinac Island was discussed. Ever since this meeting place was announced many groups, on and off the record, have taken a dim view of the location. The sentiment of the Philadelphia Section is unfavorable because of transportation difficulties.

There was also the matter of the request of the Chicago Section that the Philadelphia Section supply talent for some of the entertainment at the "Mixer" evening at the coming National IFT Conference in Chicago. The Section, with reluctance, decided that they would not be able to gather enough talent to comply with the Chicago Section's request.

MARYLAND SECTION

The March meeting of the Section was held on the 10th at the Hotel Stafford in Baltimore. Dr. E. C. Crocker of Arthur D. Little, Inc., Cambridge, Mass. spoke on "The Chemistry of Flavors and their Evaluation." Inasmuch as Dr. Crocker directed his talk to the ultimate consumer, the housewife, efforts were made to have a good representation of wives, sweethearts, mothers-in-law and just girl friends in attendance.

(Continued on page 14)

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Abstracts

(Continued from page 10)

FRUIT AND FRUIT JUICES

102J. A third paper on syrup ratios for use as approximations in the concentrating of citrus juices.

MOORE, E. L. *Fruit Prod. J., 29,* 68-9 (1949).

A table is presented that gives the approximate number of gallons of desired ° Brix concentrated juice obtained from 100 gallons of a given ° Brix juice. An illustrative example is presented for the use of the table. As in the previously published papers, the table covers the ° Brix range of citrus juices—lime, grapefruit, tangerine, and orange juice.

103J. Clarification of fruit juices by enzymes from microorganisms.

HALBINGER, R. E. *Rev. argentina agron., 16,* 81-7 (1949).

Fresh, filtered fruit juice is still turbid from suspended pectins and proteins. Addition of 1 cc. enzyme extract from *Aspergillus wentii* or *A. fumigatus* to 9 cc. apple or grape juice cleared them within 3 hrs. at 39-40°. Extracts from *A. parasiticus, Botrytis cinerea, Fusarium fructigenum, Monilia fructigena,* and 20 other fungi were less satisfactory. The extracts were obtained by shaking 55 cc. of the culture on moist wheat bran with 45 cc. water for 20 minutes, filtering through Whatman paper no. 1 and washing with 5 cc. water.

104J. A table for use in standardizing canned citrus juices.

MOORE, E. L. *Fruit Prod. J., 29,* 38-40 (1949).

A table is presented that gives both the approximate number of gallons of 45° Brix concentrated juice and the approximate number of pounds of sucrose respectively, to add to each 100 gallons of a given ° Brix juice to obtain a desired higher ° Brix juice. Illustrative examples are given for the derivation and uses of this table.

105J. Carbohydrate fractions of lemon peel.

SINCLAIR, W. B., AND CRANDALL, P. R. *Plant Physiol., 24,* 681-705 (1949).

The soluble sugars from whole peel or albedo averaged 54.0 to 96.8% of the total alcoholic extractives, the proportion depending upon the maturity of the fruit. In addition to soluble sugars, the alcohol-soluble fraction contained substances such as essential oils, waxes, organic acids, and various concentrations of undetermined constituents. The alcohol soluble fraction also contained a substance which liberated a small amount of CO_2 on boiling with 12% HCl. As the alcohol-insoluble solids contained the pectin, most of the CO_2 occurred in this fraction. The sum of the water-soluble and ammonium citrate soluble pectin (as calcium pectate) of the whole peel amounted to 35.29% (average value) of the alcohol-insoluble solids. These values are much lower than those for total pectin calculated from CO_2 and methoxyl values, respectively.

106J. Dehydrofreezing improves food quality.

LEGAULT, R. R., AND TALBURT, W. F. *Refrig. Eng., 57,* 1175-7 (1949).

Several kinds of fruit and vegetables can be dehydrofrozen to yield products of excellent quality and convenience. A weight and volume reduction of about 50% appears attainable; with certain products greater reductions may be permissible. While the advantages of the process over conventional freezing lie largely in these reductions in weight and volume, advantages in quality and convenience appear possible especially with fruit.

107J. Dehydrating process for starchy vegetables, fruits, and the like.

GREENE, J. W., AND ROHRMAN, F. A. Assignors to Research Corp., 2,490,431, Dec. 6, 1949.

A method of dehydrating peel-covered potatoes which comprises cooking the potato, freezing and thawing the cooked potato whereby to toughen the cells thereof, forming a slurry of at least a portion of the edible part of the potato which is unpeeled in an aqueous solution containing approximately 2% by weight of NaCl to inhibit excessive rupture of the potato cells, screening the peel from the potato, mechanically separating a portion of the solution from the potato and drying the potato.

MEAT

108J. Thiamine and riboflavin retention in beef during roasting, canning and corning.

MAYFIELD, H. L., AND HEDRICK, M. T. *J. Am. Diet. Assn., 25,* 1024-7 (1949).

The effect of roasting, canning, and corning on the thiamine and riboflavin content of beef from cattle fed grass or grain for different intervals of time was determined. The apparent effect of feeding grain to range cattle appeared to be an increased fat content of the tissues which became evident sometime after sixty days. Thiamine and riboflavin values were not affected by variation in the feeds studied. During roasting, the retention of thiamine (42 to 64%) was significantly lower than that of riboflavin (83 to 102%). Thiamine retention during canning was slightly higher in metal cans (24 to 37%) than glass jars (15%), but in both cases the losses were great. Riboflavin, on the other hand, appeared to increase significantly during this process when measured by the fluorometric method (171% in glass, 213 to 280% in metal cans). Storage seemed to cause no further changes in the values of either of the vitamins. The retention of thiamine was 20 to 52% after corning, and riboflavin retention was 90 to 114%. Only 8 to 21% of the thiamine and 45 to 73% of the riboflavin were retained when the meat was cooked in addition to corning.

PECTIN AND GELS

109J. Pectins, pectic acids, and their gels.

JAKOVLIV, G. *Inds. agr. et aliment, 66,* 47-50 (1949).

Previous literature is reviewed. Hydrolysis with 0.5 or 1.5 N HCl at 0-3° and 20°, of pectin from beet cossettes yields pectic acids whose content of MeO and nongalacturonic constituents is very similar to those of pectic acids prepared under the same conditions from apple pomace.

110J. Water soluble pectic acid derivatives.

PALLMANN, H., AND DEUEL, H. Swiss 251,387, Aug. 2, 1948.

Water-insoluble, highly polymeric pectic acids are transformed into water-soluble products by heating with relatively concentrated HCHO solutions at 75-100°. The (hydroxymethyl) pectic acids thus formed are useful as thickening agents. A mixture of 10 g. pectic acid and 1 liter 15-40% HCHO is heated at 90-100° for 10-30 min. The soluble half-acetal of pectic acid is precipitated with EtOH-HCl, filtered, washed with diluted EtOH on the filter, and dried. At 80° the reaction takes place to the extent of only 40%, and at 70° not at all. Theoretical considerations are discussed.

111J. Stabilized ice-cream mixes.

STEINER, A. B. AND SPERRY, G. D. Assignors to Kelco Co., 2,485,935, Oct. 25, 1949.

The method of stabilizing an ice cream which consists in adding to the ice cream mix, prior to freezing the same, a small but effective quantity of a propylene glycol ester of alginic acid, said acid being not less than 40% esterified and in the form of solid particles which will pass substantially completely through a 40 mesh standard screen.

SALT

112J. Mineral salt block.

DUNN, J. A., AND MILLER, F. G. Assignors to General Foods Corp., 2,489,758, Nov. 29, 1949.

A salt block of the type containing a trace mineral supplement to the animal diet in the form of an edible compound of a physiol. beneficial element dispersed throughout a dense solid mass of compressed salt, said compound being substantially soluble in digestive fluids, whereby the supplemental element is made available to the animal during digestion, but substantially insoluble in water containing 0-26% salt so that it is not dissolved by moisture absorbed by and percolating through the block.

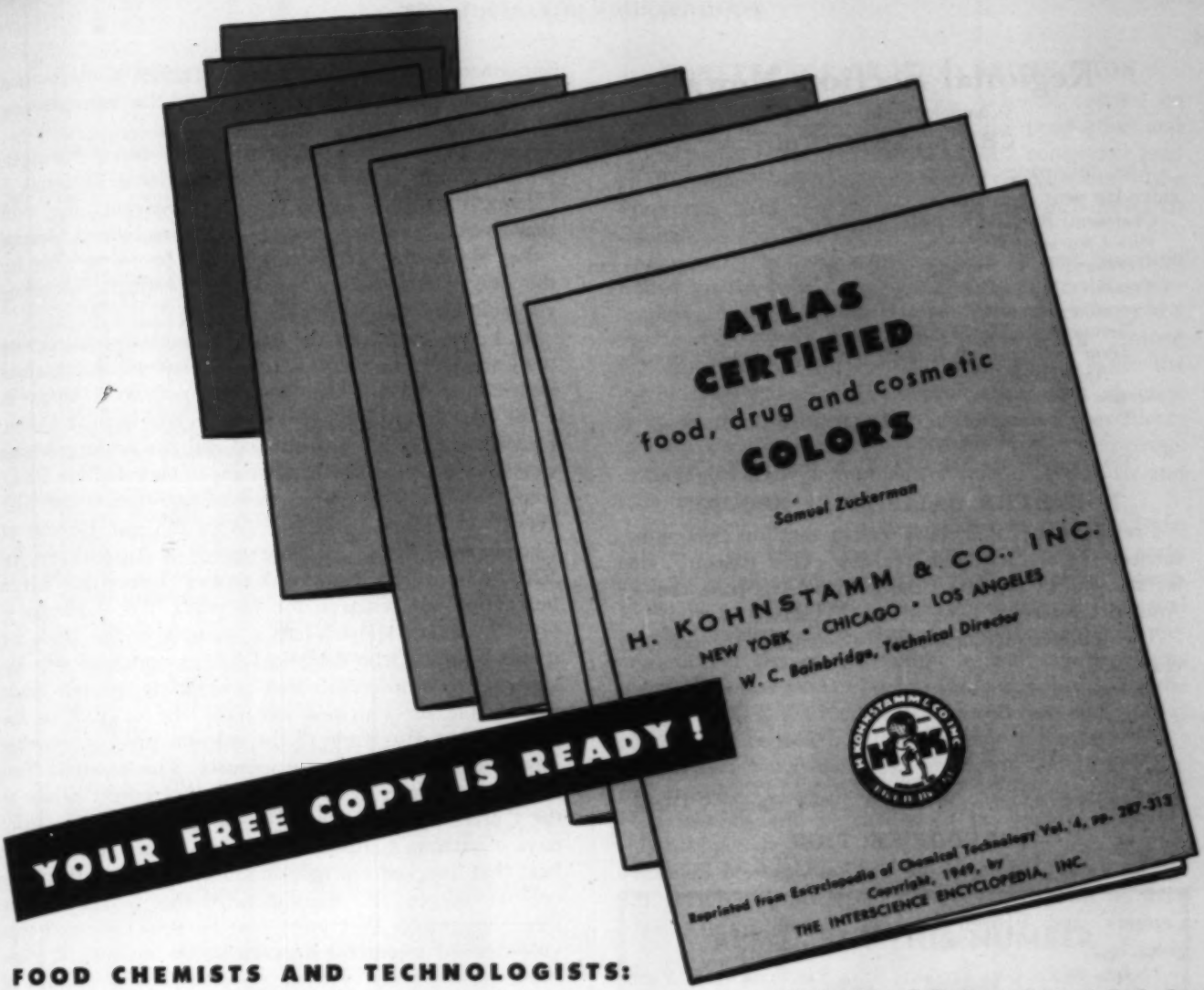
PHYSICAL SCIENCES

113J. The nature of adhesion.

MOSES, S. *Ind. Eng. Chem., 41,* 2338-42 (1949).

Analysis of the data on the adhesion of polystyrene, VYHH, and methyl methacrylate systems to aluminum alloy has shown

(Continued on 3rd cover)



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Regional Section News

(Continued from page 11)

CHICAGO SECTION

The following officers have been elected for the calendar year 1950:

Chairman: Rohland A. Isker.
Vice Chairman: B. S. Clark.
Secretary: O. G. Braun.
Treasurer: G. E. Brissey.
Executive Committee: L. R. Hedrick.
Term expires Dec. 31, 1950: W. E. Pearce.
Term expires Dec. 31, 1951: W. J. Mutschler, Dorothy Anne Huber.
Section Councilors:
Term expires Dec. 31, 1950: Rohland A. Isker, G. C. North, B. M. Shinn.
Term expires Dec. 31, 1951: L. A. Hall, B. S. Clark.

NORTHERN CALIFORNIA SECTION

President Carl R. Fellers reports that this Section has turned into the national treasury (IFT treasury, that is) the sum of $5,000 as the net proceeds from the 9th Annual Conference held at San Francisco last July.

The following officers were elected for the calendar year 1950:

Chairman: Ernest E. Jacobs.
Vice Chairman: Edwin L. Mitchell.
Secretary: Richard McKirahan.
Treasurer: Willis J. Parks.
Councilors: Robert N. Berry, Louis G. Petree.
Executive Committee: Prescott R. Lloyd, Harold S. Olcott.

OREGON SECTION

The Fifth Meeting of the Section was held February 11th on the Oregon State College campus during the Canners' and Frozen Packers' School. Talks were given by:

Thomas Bruce, Corn Products Sales, San Francisco. "Manufacture and Uses of Corn Derivatives."
V. Morgan, Lane County Health Unit, Eugene, Oregon. "The Sanitarian's Interest in the Food Industry."
R. O. Sinnhuber, Sea Foods Laboratory, Astoria, Oregon. "Research Studies in Fishery Wastes."
R. O. Behkengren, Department of Botany, Oregon State College. "Quality Control in the Pineapple Industry in Hawaii."

Following the formal program, student members held a business meeting and reported a membership of 37.

E. E. Jacobs, Chairman, Northern California Section, brought greetings from California and told of some of the activities of his Section.

It was voted to accept and sponsor the student petition for a student chapter on the campus. Such a chapter has been given tentative approval by campus authorities.

Present officers of the Section are:

Chairman: E. H. Wiegand.
Vice Chairman: J. Spencer George.
Secretary-Treasurer: G. A. Richardson.
Councilor: E. H. Wiegand.
Executive Committee: C. L. Beardsley, K. P. Fenner, E. M. Litwiller and E. I. Pitkin.

PERSONNEL

CARL R. FELLERS, President, IFT, addressed the Florida Section of the Institute at Winter Haven (City of a Hundred Lakes and the Cypress Gardens—no charge for this plug) on January 26th, and the Dixie Section at Atlanta, Georgia, on February 3rd. His subject: "The Laboratory in Business." Dr. Fellers also announced that the Institute has under consideration the acquisition of *Food Research* and the incorporating of the Institute.

GEORGE HAMILTON, formerly Bulk Sales Manager, Amino Products Division of International Minerals & Chemical Corp., manufacturers of Ac'cent, the stuff that "makes food flavors sing," has been named General Sales Manager. Mr. Hamilton will be responsible for the sale of Ac'cent and associated products, including glutamic acid and betaine.

E. F. KOHMAN, for the past 13 years associated with the Campbell Soup Co., is retiring, but will be retained as a consultant for that company and will engage in other consulting work. Dr. Kohman was born at Dillon, Dickinson County, Kansas and did his undergraduate work at the University of Kansas; he received his Ph.D. from Yale in 1915. He carried on research at the University of Illinois, and later with the old Bureau of Chemistry of the U. S. Department of Agriculture. In 1919 he joined the National Canners Association where he carried out research for 18 years. Dr. Kohman is loved by every spinach-hating moppet in the land, for it was Kohman who debunked this ex-wonder food. He showed that the oxalic acid present in spinach made unavailable for nutrition not only the calcium in the spinach, but also some of the calcium present in other foods eaten along with the spinach. The Kohman Test for butterfat was devised early in his career while at the University of Illinois. He showed, too, in the early days of vitamin C research, that it was not so much the heat that knocked out this vitamin, but rather the presence of oxygen. He demonstrated that to successfully freeze vegetables they must first be blanched; and that vine-ripened tomatoes were richer in vitamin C than those picked green and then ripened. The studies of Kohman and his coworkers on the mechanics of corrosion of tin containers were of far-reaching implication. He is the author of over 50 papers in chemical, nutritional and medical journals, and almost an equal number in trade papers. He has contributed his rich technical knowledge to several texts on nutrition and better living through adequate nutrition.

Off the sick list at two opposite ends of the United States are A. M. NEUBERT, in charge of the Bureau of Agricultural and Industrial Chemistry's field station at Pullman, Washington; and M. K. VELDHUIS, in charge of the Bureau's field station at Winter Haven, Florida.

MILTON E. PARKER, director of the food engineering program at the Illinois Institute of Technology, recently addressed the 14th annual Pest Control Operators Conference at Purdue University, pointing out the need of education in and standardization of pest control and materials which may find their way into food. In portraying the need for safe and standard materials, Mr. Parker noted the responsibilities of the individual food processor under federal statute.

ARTHUR N. PRATER, director of research, Gentry Inc., Los Angeles, has been elected a member of the board of directors.

RALPH E. SANBORN, Plant Coordination Director, California Packing Corp., has been named a member of the nine-man state water pollution control board set up by Governor Earl Warren according to a law passed by the 1949 California Legislature.

PRELIMINARY PROGRAM

(Continued from page 5 preceding technical papers)

98. Relationships between Amount and Compósition of Press Fluid, Palatability, and Other Factors of Meat—A. M. Gaddis, O. G. Hankins, and R. L. Hiner.
99. Quality Evaluation of Fresh, Frozen, and Canned Sweet Corn—W. A. Gould, Fred Krantz, Jr., and James Mavis.
100. Flavor Evaluation of Canned Fruits and Vegetables Treated with Insecticides—W. A. Gould, Jay Sleesman, Roy Rings, Fred Krantz, Jr., and Margaret Lynn.

C. Research Investigations.
Section B—American Room. Presiding—Louis B. Howard.

101. Prolonging the Life of Fresh Fruits and Vegetables—Walter A. Maclinn.
102. Peracetic Acid, A New Bactericide-Fungicide: Its Application to Mold Control of Tomatoes—Frank P. Greenspan and Donald G. MacKellar.
103. Varieties and Handling of Potatoes for Chip Manufacture—R. C. Wright and T. M. Whiteman.
104. Storage Maturity of Apples in Relation to Quality of Their Frozen Product—Joseph S. Caldwell, Charles W. Culpepper, and George M. Darrow.
105. The Effect of the Length of Soak on the Quality of Canned and Frozen Montmorency Cherries—Roy E. Marshall, W. F. Robertson, C. L. Bedford, and W. H. Case.
106. The Preparation and Storage of Peach Juice—Frank A. Lee and Carl S. Pederson.
107. The Retention of Vitamin C and Color Development in Synthetic Jellies. I. Effect of Partial Sucrose Replacements—T. P. Human, Oliver J. Worthington, and E. H. Wiegand.
108. Relationship of Particle Characteristics to Rehydration Properties of Dehydrated Soups—Albert C. Rauch, James A. Luker, and J. R. Wagner.
109. A Study of the Factors Affecting Measurement of Headspace in Canned Corn—R. G. Tischer and J. G. Darroch.

Evening

Dinner and Entertainment, 7:00—Marine Dining Room.

THURSDAY, MAY 25

Morning

"Guinea Pig" Breakfast, 7:30-8:45—Marine Dining Room.

A. Symposium, 9:00-12:00.
Military Subsistence of the Future. Presiding—Colonel Rohland A. Isker.

108. Additional Burdens on Agriculture Caused by the Mobilization of Ten Million People into the Armed Forces—Frank K. Woolley.
109. Problems of Subsistence that May Confront the QMC in the Future—General W. H. Middleswart.
110. Industrial Mobilization Planning and Its Probable Effect Upon the Food Industry—Colonel H. Mackintosh.
111. Problems Encountered in the Field Relative to Special Purpose Rations During the Last War—William H. Chambers.
112. Progress on Special Rations—Colonel J. S. Kujawski.
113. Civilian Feeding in Time of an Emergency—Robert Goodhart.

Afternoon

Field Trips, from 1:00 p. m.
1. Quartermaster Food and Container Institute, U. S. Army
2. Curtiss Candy Company
3. Swift & Company
4. Corn Products Refining Company

FRIDAY, MAY 26

Morning

Field Trips, 8:00-12:00.
5. The Griffith Laboratories, Inc.
6. Kraft Foods Company
7. National Biscuit Company
8. Continental Can Company

CONFERENCE ON FOOD PROTECTION

A new organization to provide technical counsel on the utilization of new materials in the production and processing of foods was considered at a conference held in Washington, December 29, under the auspices of the Food and Nutrition Board of the National Research Council.

The conference was called by the Food and Nutrition Board for the purpose of bringing together the representative viewpoints of government, agriculture, the food and chemical industry, and public health. Among the subjects discussed in the all day session were the use of newer chemicals in the production of an adequate food supply, the introduction of functional ingredients in food processing, and the need for further knowledge in the application of these newer aids in agriculture and food technology.

By unanimous action the conference requested the chairman, Dr. H. E. Longenecker, to appoint at an early date a committee to complete organizational and operational plans for approval of various groups interested in the problem. The chairman emphasized the desirability of cooperative action by industrial, government, and other research organizations in providing the scientific guidance required for protection of the food supply with regard to both adequancy and safety.

It is anticipated that food producers and processors, the chemical industries, and the various professional organizations will be invited to participate jointly in this new activity.

REMEMBER THIS NUMBER

27

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of the

INSTITUTE OF FOOD TECHNOLOGISTS

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FISH OILS IN GERMAN FEDERAL REPUBLIC

For more than 10 years, the consumption of fats and oils in Germany has been restricted due to the insufficiency of supply, states a September 30 report from the American Consulate at Bremerhaven. Strenuous efforts have been made to develop domestic sources of edible fats and oils, and fish oil has become a highly prized commodity. Growing supplies of imported fats and oils are decreasing the demand for fish oil and fish fat, and black-market prices are little above the official prices. However, sea fish still are of importance in Germany's fats and oils supply, accounting for about 10 percent of the domestic production or about 2 percent of the total consumption.

Fish oil is produced in two ways. Fish liver oil is produced on the catching vessel at sea by the simple steam process which extracts between 70 and 80 percent of the oil contained in the livers. Ordinarily fish oil is extracted by the fish meal factories ashore from inedible fish waste. From both types of fish oil, and edible, odorless and tasteless fat is being produced by several companies. According to the producers, the fat can be used unblended for any cooking purpose.

Only certain types of sea fish are used in Germany as a source of liver oil. The cod and haddock are the two principal sources, although ling and dogfish are also treated. When the extraction process is carefully and efficiently carried out, about 2.6 gallons of liver oil are obtained from a metric ton of cod or haddock. Yearly production of fish liver oil in Germany is estimated now to be around 317,000 gallons per year. Only a small proportion of this is used for medicinal purposes.

The ordinary fish oil is obtained as a byproduct by the fish meal factories and fish smoking plants, and is quantitatively more important as a source. This ordinary fish oil is obtained in the fish meal factories by grinding and pressing fish waste.

Commercial Fisheries Review, January, 1950.

Canned Foods as a Source of Iron

Number 7 in a series which summarizes the conclusions about canned foods reached by authorities in nutrition research

Iron performs several vital physiologic functions in the human body. (1) Certainly the best known, as well as a most important, role of iron is the formation of hemoglobin, the blood constituent which effects oxygen transport.

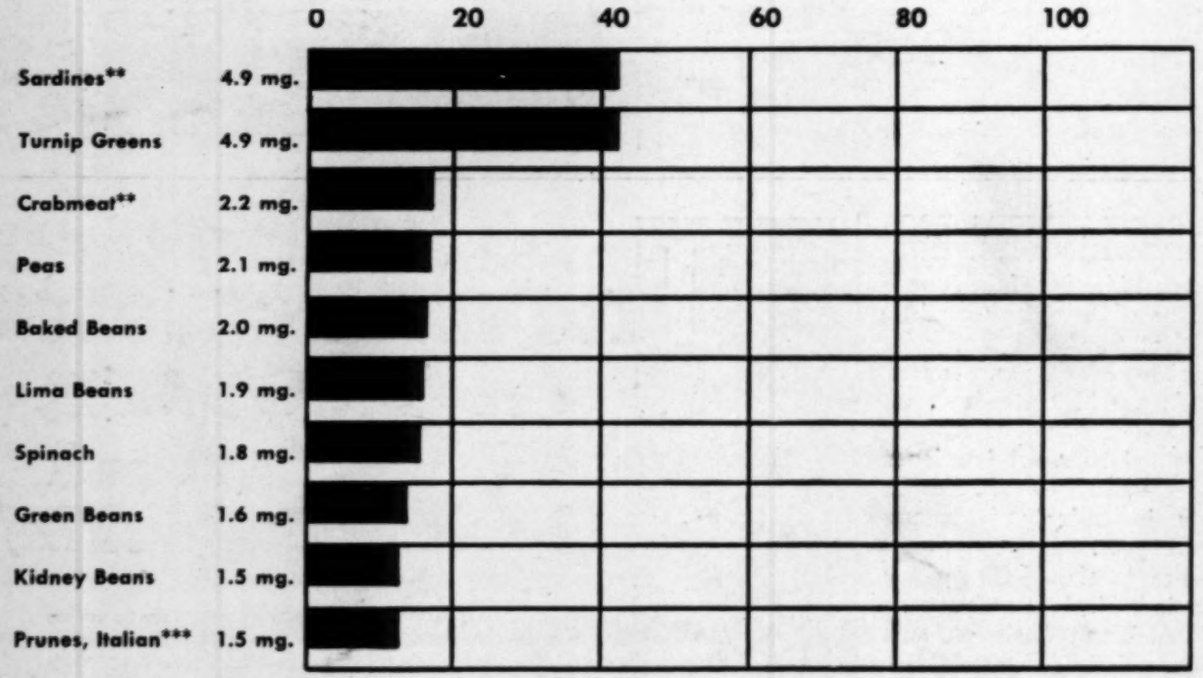
Dietary deficiency of iron may produce a definite type of anemia due to inability of the organisms to produce an adequate amount of hemoglobin. (2) This kind of anemia is not uncommon in infants, or in older individuals during periods of the life cycle in which body demands for iron are unusually heavy.

Fortunately, by intelligent diet planning, the normal individual can readily obtain an optimal supply of iron. (3) The best sources of the mineral are meats, fish, legumes, and green vegetables.

A number of canned foods, as the table below indicates, contribute more than ten per cent of the daily allowance of this essential nutrient.

Percentage of Recommended Daily Allowance* in 4-oz. (113 grams) serving (4)

(Based on analysis of the entire can contents)



*Percentage based on Recommended Daily Allowance—12 mg for physically active male—National Research Council

** Brine or oil discarded

***Pitted weight

(1) 1946. Chemistry of Food and Nutrition. H. C. Sherman. Page 283. Macmillan, New York.

(2) 1939. The New Knowledge of Nutrition. E. B. McCollum, E. Orent-Keiles, and H. G. Day. Page 211. Macmillan, New York.

(3) 1948. Recommended Daily Dietary Allowances. Page 9. National Research Council, Washington, D. C.

(4) 1947. Canned Food Reference Manual. Page 237. American Can Company, New York.

CANCO AMERICAN CAN COMPANY • 230 Park Avenue, New York 17, N. Y.

The Seal of Acceptance denotes that this advertisement has been reviewed by the Council on Foods and Nutrition of the American Medical Association and has been accepted by them.

Prominent canner finds that 24% more housewives prefer his beef stew with Ac'cent!

CONSUMER TEST again demonstrates how Ac'cent amazingly intensifies the flavor of processed foods—and at low cost

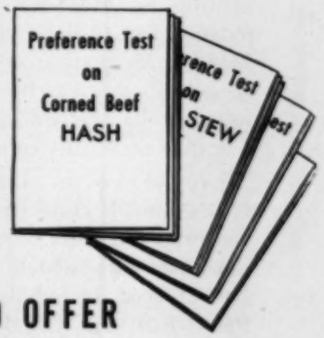
Ac'cent is not a flavoring, not an ordinary condiment or seasoning. It adds no flavor, aroma or color of its own. It brings out—and holds—the *natural* flavors of foods. With Ac'cent you use your own formulas; prepare as usual—just add Ac'cent.

Ac'cent is a 99+% pure monosodium glutamate, a wholesome vegetable derivative. 100 and 200 lb. drums

This manufacturer of a leading brand of beef stew doubted that there was any *practical* way to improve the flavor of his product. However, he agreed to a test of Ac'cent in his plant, in which a bit of Ac'cent was added in the processing of his stew. A sample of this test run and a sample of the regular run were sent to 143 housewives.

130 housewives stated a preference and *62%* of them preferred the stew *with Ac'cent*—a majority of 24%!

The complete results of this test, and other similar ones, are on file in our offices. They lead to a conclusion that is important to you . . . that no other single additive can, so easily and economically, *make such a difference!*



READ THIS STRAIGHTFORWARD OFFER

At no obligation to you, we will welcome the opportunity to demonstrate what Ac'cent can do in one of your own foods. Following that demonstration, if a consumer test is considered desirable, we will pay the cost of it, including payment for the materials used. Wire or phone for full information. Amino Products Division, International Minerals & Chemical Corporation, General Offices: 20 N. Wacker Drive, Chicago, Illinois. San Francisco: 214 Front Street; New York City: 61 Broadway. Representatives in Canada: W. G. Clark Co., Ltd., Montreal and Toronto; MacKelvies, Ltd., Winnipeg.

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